

WHAT IS CLAIMED IS:

1. An automatic feeding device for feeding plural sheets of recording medium stacked on a stacking portion by separating them one by one, comprising:

feeding means for carrying said recording medium stacked on said stacking portion;

separating means for separating said recording medium one by one by abutting against said recording medium carried by said feeding means; and

a front stage regulating member for confining the number of sheets of said recording medium advancing into said separating means, wherein at least one of supporting members provided for both ends of said feeding means is made movable, and at least one of said supporting members is structured to move between plural positions during the execution of a series of feeding operations.

2. An automatic feeding device according to Claim 1, wherein said plural positions include a first position for said feeding means to have a predetermined gap with said front stage regulating member, and a second position for said feeding means to form no gap with said front stage

regulating member.

3. An automatic feeding device according to
Claim 2, wherein said front stage regulating
5 member is biased toward said feeding means, and
the structure is formed so as not to generate
pressure between said front stage regulating
member and said feeding means when said feeding
means moves to said second position.

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4. An automatic feeding device according to
Claim 2 or claim 3, wherein the structure is
arranged to enable said feeding means to be in
said first position before the initiation of
15 feeding operation, and move in the direction
toward said second position immediately after the
feeding operation begins, and return to said first
position during the separation of said recording
medium by said separating means, and move to said
20 second position during the operation of adjusting
the advancing direction of said recording medium,
and then, return to said first position when the
feeding operation is completed.

25 5. An automatic feeding device according to
Claim 1, wherein said feeding means is structured
to move in the direction substantially along

straight line.

6. An automatic feeding device according to Claim 1, wherein said feeding means is formed by a sheet-feeding roller having a circular sightable shape on the side face, and said separating means is formed by a separation roller provided with a torque limiter rotative by a predetermined torque.

7. An automatic feeding device according to Claim 1, wherein the force of said feeding means to move said supporting member is generated by the relations of the vertical resistance N generated by said separating means abutting against said feeding means, the friction force F generated by said vertical resistance N between said feeding means and said recording medium, the tangential force F_t generated by said separating means, and an angle β formed by the straight line connecting the rotational center of said feeding means and the rotational center of said separating means, and the moving direction of said feeding means.

8. An automatic feeding device according to Claim 1, wherein the value of $(1/\tan\beta)$ obtainable on the basis of the angle β formed by the straight line connecting the rotational center of said

feeding means and the rotational center of said separating means, and the moving direction of said feeding means is larger than the value of friction coefficient of said recording mediums themselves
5 to be separated by said separating means.

9. A recording apparatus provided with an automatic feeding device according to Claim 1, comprising:

10 sheet-conveying means for conveying said recording medium from said automatic feeding device to the recording area; and

skew preventing means for adjusting the advancing direction of said recording medium by
15 use of said sheet-conveying means, wherein

the structure is arranged to drive said sheet-conveying means and said automatic feeding device with one and the same driving source, and the driving power is not transmitted from said
20 driving source to said feeding means when said sheet-conveying means is driven to convey said recording medium in the direction of conveying said recording medium to said recording area, and then, said driving power is transmitted to said
25 feeding means when said sheet-conveying means is driven in the direction of conveying said recording medium opposite to said direction.

10. A feeding device comprising:

a pickup roller for carrying sheet;

a pressure plate for pressing sheet to said pickup roller;

5 a separation roller for separating sheet in corporation with said pickup roller to enable said pickup roller to convey the separated sheet;

a guide member facing said pickup roller for guiding sheet advancing into the nipping portion
10 of said pickup roller and said separation roller;

a roller pair abutting the leading end of sheet conveyed by said pickup roller for correcting the diagonal advance of the sheet; and

supporting means for supporting said pickup
15 roller to be movable to a first position having said pickup roller and said guide member to be separated, and a second position having said pickup roller to press sheet to said guide member.

20 11. A feeding device according to Claim 10, wherein said second position is more on the upstream side than said first position in the sheet conveying direction.

25 12. A feeding device according to Claim 10, further comprising:

a spring biasing said separation roller to

said pickup roller, wherein

when said pickup roller and said separation roller are separated, the biasing force of said spring enables said pickup roller to be held in
5 said first position.

13. A feeding device according to Claim 12, wherein when only one sheet is pinched between said pickup roller and said separation roller, the
10 reaction force received by rotating pickup roller from sheet causes said pickup roller to move from said first position to said second position against the biasing force of said spring.

15 14. A feeding device according to Claim 10, further comprising:

a torque limiter giving resistance to the rotation of said separation roller in the direction allowing sheet to advance.

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15. A feeding device according to Claim 14, further comprising:

a return lever for pushing back sheets other than the separated sheet to the upstream side in
25 the conveying direction after said pickup roller and said separation roller begin the sheet separation.

16. A feeding device according to Claim 15,
wherein said separation roller is away from said
pickup roller while the sheets are pushed back by
said return lever.

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17. A feeding device according to Claim 16,
wherein after the sheets are pushed back by said
return lever, the separation roller moves to the
position to pinch sheet in cooperation with said
10 pickup roller, and the action of said torque
limiter is released.

18. A recording apparatus comprising:
a feeding device according to either one of
15 Claim 9 to Claim 17, and
a carriage for holding a recording head for
forming images on sheet fed by said feeding device.